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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,651	08/30/2006	Zhengrong Yang	026613-9003-US	2433

23409 7590 06/16/2010

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EXAMINER	
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ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
06/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,651	YANG, ZHENGRONG	
	Examiner	Art Unit	
	PHUNG-HOANG J. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment filed 3/23/2010 has been carefully considered and has been entered. Current standing of the claims.

Claims pending: 1-20 with claims 1 and 11 being independent.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US Pub 2003/0227903) in view of Akman (US Pat 7,146,410).

As to claims 1, 11-12, Watson teaches a method and system for implementing multimedia calls across a private network boundary, comprising a public network *(network 110, [0034])* and at least one private network *(Networks 112 and 114, [0034] with various stations 150 used for real-time bi-directional multimedia communications, such as services-real-time audio, video, and data communications-over packet networks, including Internet protocol (IP)-based networks, [0028])*, characterized in that the system comprises:

multimedia terminals *(station 150 of fig. 1)* of various protocols *(SIP or H.323, [0028])*;

at least one boundary gateway *(router 130 of fig. 1)* for connecting the private network *(Networks 112 and 114, [0034])* and the public network *(network 110, [0034])*, and performing the translation of a private network address and a public network address, wherein each boundary gateway is provided with a unique subnetwork ID *(IP address with dedicated port, [0044, 0061, 0062]. For example if the private IP address is 192.168.1.8 the station 150 will be assigned port 2008, [0063])* to correspond to the private network connected therewith *(the NAT firewall will translate the private address to a public address; also known as masquerading, [0035]).*

a call controller *(public proxy/gate keeper (PPG 120))* for establishing calls and controlling service logics, in which is recorded the correspondence relationship information of all said boundary gateways and the subnetwork IDs *(During an exemplary VOIP telephone call between endpoints (e.g., a call from station 150a in network 112 to station 150f in network 114), the initiating station 150a transmits a call setup to PPG 120. In response, PPG 120 finds the IP address of station 150f from a database. Subsequently, PPG 120 transmits a setup to station 150f, [0030-0035]);*

wherein the call controller processes the call concerning a private network according to the subnetwork ID information *(PPG 120 provides call control services for stations 150, such as address translation, admissions control and bandwidth control, [0030-0035 and 0040])*.

Watson does not explicitly teach at least one **media gateway** for connecting with multimedia terminals of various protocols.

Akman teaches at least one **media gateway (**Media Gateway 130 of fig. 1A) for connecting with multimedia terminals of various protocols *(first embodiment of the invention is a device for translating IP addresses of control protocol messages sent between nodes on separate IP networks, col. 1, lines 64-67)* for the purpose of ensuring that appropriate routing of a communication session ensuring that the packets reach to the intended destinations.

Therefore, it would have been obvious to the ordinary skill artisan at the time of the invention was made to incorporate the teaching of Akman into the teaching of Watson for the purpose of enhancing security and higher quality of service.

As to claim 2, Watson teaches the media gateway, as an access point of multimedia services *(see claim 1: real-time bi-directional multimedia communications, such as services-real-time audio, video, and data communications*) for the multimedia terminals connected therewith, assembles the signaling information of the multimedia terminals *(see claim 1: stations 150)* to the call controller into the standard signaling information according to the respective protocol *(during call signaling, station 150 sends call-signaling messages to PPG 120, [004])* and sends it to the boundary gateway connected with the media gateway (see claim 1).

Watson does not explicitly teach "not changing the content of the signaling message).

It is however as appreciated by the ordinary artisan, the role and function of the NAT is to masquerade the address hiding an entire address space (usually consisting of

private network addresses) behind a single address in another public address space. NAT is quite common not to deal with the content of the message.

Therefore it would have been obvious to the ordinary artisan to clearly define the role and function of the NAT to eliminate any assumption that in protecting the security of the message, NAT will do everything within the defined role and function of masquerading the address, rather than the changing of the content of the message. (Additional support as noticed that Beser et al. in US Pat 6,523,068 (applicant's disclosure) teaches *"network address translation interferes with the end-to-end routing principal of the Internet that recommends that packets flow end-to-end between network devices without changing the contents of any packet along a transmission route, col. 2, lines 30-35).*

As to claims 5-7, Watson, in view of Akman, does not teach that the private network of the system can further have private networks nested within.

It is however obvious to the ordinary artisan that very system that Watson teaches can be modified with a private network within a private network and still conformed to the industry standards, regulations and requirements where the nested private network can have a similar configuration setup and interface as the private network interface with the public network with sub-network ID, media gateway and boundary gateway.

As to claims 8-10, both Watson and Akman teach each private network is provided with a unique subnetwork ID and that the subnetwork ID of each boundary gateway is consistent with the subnetwork ID of the private network to which it belongs

(Watson: see claim 1 and also IP address with dedicated port, [0044, 0061, 0062]. For example if the private IP address is 192.168.1.8 the station 150 will be assigned port 2008, [0063]). Also see Akman: fig. 1A, col. 3, lines 43-67 for detail discussion on unique IP address and fig. 3A, col. 4, line 61- col. 5, line 59 for the detail of translation/interpretation using NAT/firewall.

Claims 3-4 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson in view of Akman and further in view of Beser (US Pat 6,253,068).

As to claims 3-4 and 13-15, Watson, in view of Akman, teaches the boundary gateway is used for receiving the signaling message from a media gateway connected therewith, establishing a signaling tunnel from the boundary gateway to the call controller according to its own subnetwork ID *(see claim 1)*, sending the signaling message to the call controller *(see claims 1 and 2)* through the signaling tunnel, and when the media gateway initiates the call, automatically establishing a media channel to the called side boundary gateway according to the subnetwork ID *(see claim 1)* of the called side boundary gateway, to transmit the media traffic , *([0059] and see fig.* 5).

Watson also teaches that the call controller receives the signaling message from the boundary gateway, returns a response message to the media gateway having sent the signaling message according to the subnetwork ID of the boundary gateway *(PPG 120 forwards the alerting message to the calling station 150 if the message has been received, [0081]).*

Watson does not explicitly teach sending the signaling message to the call controller through the signal tunnel. Nor does Watson teach establishing of a signal tunnel.

Beser teaches the use of tunnel where packets will be traveling from a private network through the tunnel and establish the media call.

Therefore it would have been obvious to the ordinary artisan at the time of the invention was made to incorporate the teaching of Beser, in view of Akman, into the teaching of Watson for the purpose of processing of a Voice-over-Internet-Protocol media flow between an originating telephony device and a terminating telephony device, ensuring that the addresses of the ends of the tunneling association are hidden on the public network and may increase the security of communication without an increased computational burden, (col. 3, lines 25-33) and in support of a more secure establishment of calls between call stations behind the NAT firewall, [0077-0082].

As to claim 16, Watson, in view of Akman, does not discuss that the signaling tunnel, after being established, will remain permanently and be maintained all the time by the boundary gateway for the subsequent signaling exchanges between the connected media gateways and the call controller.

Beser teaches forming a tunnel association to protect the integrity/security of a communication session as the addresses being hidden in the public network. Therefore it would have been obvious to the ordinary artisan that the tunnel, after establishment, should be preserved permanently for future communication sessions.

As to claims 17-20, Watson, in view of Akman, teaches when the media gateway initiating the call, establishing a media channel from the boundary gateway connected with the media gateway to the called side boundary gateway, and transferring the media traffic through the media channel *(See claim 1 and [0030,0031])*.

Watson also teaches the media gateway initiating the call, sending the call number *(corresponding telephone number are previously stored in a database associated with PPG 120, [0043])* to the call controller *(PPG 120);*

the call controller, after receiving the call number, analyzing the call number, and determining the boundary gateway connected with the media gateway and the called side boundary gateway *(masquerade module 255 examines each packet received at PPG 120. Further masquerade module 255 compares an IP address embedded within the data portion of each received packet to a source IP address in the packet header indicating the source of the packet, [0051] and fig. 6A label 610, examine the packets and subsequently connect message 645);*

the call controller sending a command request to establish a media channel to the calling side boundary gateway and the called side boundary gateway respectively according to the subnetwork IDs of the calling side boundary gateway and the called side boundary gateway *(Watson: see fig. 6 for setup/invite message including calling station's identity, 0076);*

the call controller receiving the information of the media ports allocated and returned by the calling side boundary gateway and the called side boundary gateway respectively, and notifying the information of the media ports to the opposite side

boundary gateways respectively *(see fig. 6A - at processing block 625, PPG 120 transmits the setup/invite to the called station 150. Note that the setup may be received at a called station 150 behind a firewall since PPG 120 has established dedicated ports during registration, [0079]);*

Watson does not explicitly teach establishing a media channel; transmitting the media traffic through the established media channel; and once finishing transmitting, removing media channel automatically.

Beser teaches establishing a media channel *(fig. 4 shows initiating tunnel association)*; transmitting the media traffic through the established media channel *(fig. 18 shown a media flow through the tunnel);* and once finishing transmitting, removing media channel automatically (this claimed is based on obviousness for the reason of bandwidth and resource saving if the channel is not in use.

Response to Arguments

Applicant's arguments, with regards to the claims, have been fully considered but they are not persuasive.

Applicant argues:

> 1) Watson fails to disclose or teach the feature "at least one boundary gateway" in Claim 1. In particular, the "router" in Watson (shown in FIG. 1) is not equivalent to the "boundary gateway" in the present invention. A person skilled in the art will understand that a router and a boundary gateway are essentially different network devices. For example, the boundary gateway in the present invention refers to a protocol analysis gateway (lines 12-13 on page 20), and a protocol analysis gateway can implement more complex functions (line 16 on page 3 to line 4 on page 4), compared with a router, which is generally used to route a packet. So, Applicant respectfully submits that the feature "at least one boundary gateway" in Claim 1 is not disclosed or taught by Watson.

Examiner respectfully disagrees as applicant assesses that router is generally used for routing packets. There is some truth in the assessment. There are also more

details to be revealed. The detailed functionality describes broader/greater performance than just routing the packets. A router is a device that interconnects two or more communication networks (e.g., computer networks, telecommunication networks), and selectively interchanges packets of data between them. Each data packet contains address information that a router can use to determine if the source and destination are on the same network, or if the data packet must be transferred from one network to another. Where multiple routers are used in a large collection of interconnected networks, the routers exchange information about target system addresses, so that each router can build up a table showing the preferred paths between any two systems on the interconnected networks.

A router is a networking device whose software and hardware are customized to the tasks of routing and forwarding information. A router has two or more network interfaces, which may be to different physical types of network (such as copper cables, fiber, or wireless) or different network standards. Each network interface is a small computer specialized to convert electric signals from one form to another.

Few other functions are to decide which packet should be processed first when multiple queues exist. This is managed through Quality of Service (QOS), which is critical when Voice over IP (VOIP) is deployed, so that delays between packets do not exceed 150ms to maintain the quality of voice conversations.

Yet another function a router performs is called "policy based routing" where special rules are constructed to override the rules derived from the routing table when packet forwarding decision is made.

Here an ordinary artisan can see that router does perform protocol analysis... determining the type of incoming signal, translating/converting the signal to the acceptable protocol.

Watson discusses router 130 utilizing software and hardware to determine the network addresses for routing/forwarding the packets [0027]. Firewalls are integrated with router to manage multiples private IP addresses to share one public IP address of router 130, [0033].

In such the knowledge generally available to one of ordinary skill in the art, Watson has clearly defined router with the similar functionalities of a gateway.

Applicant further argues:

> 2) The feature "each boundary gateway is provided with a unique subnetwork ID to correspond to the private network connected therewith" in Claim 1 is not disclosed or taught by Watson.

Examiner respectfully disagrees. Watson notes that NAT firewalls that enable a private network with a multitude of private IP addresses to share one public IP address of router 130 wherein the public network is network 110 of fig. 1 and private networks are 112 and 114 [0035] and translate the private address to a public address. Furthermore, Watsons teaches a conversation actually occurs between caller/station 150a in network 112 and 150f in network 114 *(During an exemplary VOIP telephone call between endpoints (e.g., a call from station 150a in network 112 to station 150f in network 114), the initiating station 150a transmits a call setup to PPG 120. In response, PPG 120 finds the IP address of station 150f from a database. Subsequently, PPG 120 transmits a setup to station 150f, [0030-0035]);* In order for this conversation/connection to take place and this is just merely based on the general

knowledge available to an ordinary artisan, the assignment of a unique subnetwork ID must have already verified at the physical layer of the OSI model at the minimum. Watson discusses this as dedicated port assignment during a registration process. Port assignment module 340 assigns the dedicated port by adding the least significant byte value to the base port. For example if the private IP address is 192.168.1.8 the station 150 will be assigned port 2008, [0044, 0061-0063].

For that reason, examiner believes that Watson teaches the claimed feature.

Applicant also further argues:

> 3) As defined in Claim 1, there is "a call controller", in which "is recorded the correspondence relationship information of all said boundary gateways and the subnetwork IDs; wherein the call controller processes the call concerning a private network according to the subnetwork ID information." Watson fails to disclose these features.

The applicant provides the reason by stating that

> Watsons discloses an exemplary VOIP telephone call between endpoints ([0030]-[0035]), wherein "PPG 120 finds the IP address of station 150ffrom a database." However, the "IP address" herein is not equivalent to the "subnetwork ID" either, and the reason is: an "IP address" is a network address of a particular terminal, although in some occasions it may be used to identify the terminal, but since a subnetwork generally comprises a plurality of terminals, an IP address of a particular terminal therein can not be used to uniquely identify the subnetwork.

Examiner respectfully disagrees. As examiner indicates above, each IP address will also be assigned a port number based on the index value to the base port [0061-0063] which is a very unique way to identify the subnetwork ID and the call controller (PPG 120) monitors and maintain a record of the connection, [0081]. During an exemplary VOIP telephone call between endpoints (e.g., a call from station 150a in network 112 to station 150f in network 114), the initiating station 150a transmits a call setup to PPG 120. In response, PPG 120 finds the IP address of station 150f from a database. Subsequently, PPG 120 transmits a setup to station 150f, [0030-0035]). It is

very clear that a particular terminal has its own unique identification so that the communication between appropriate and authenticated parties can take place without any misdirection. In this particular VOIP call, it is a call set up between caller 150a and 150f and not any other 150b, c, e and/or g.

So to say that an IP address of a particular terminal therein cannot be used to uniquely identify the subnetwork is to deny the well known functionality of a NAT firewall in conjunction with a router to correctly route the packets to correct destination.

For the above reasons, examiner respectfully sustains the rejection.

CONCLUSION

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUNG-HOANG J. NGUYEN whose telephone number

is (571)270-1949. The examiner can normally be reached on Monday to Thursday, 8:30AM - 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 571 272 7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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